CLINICAL PRACTICE GUIDELINES
FOR DEPARTMENT OF GENERAL SURGERY
PAKISTAN INSTITUTE OF MEDICAL SCIENCES
ISLAMABAD

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FOREWORD

The drafting of Standard Operating Procedures (SOPs) has been undertaken under the kind supervision of Professor Dr. Tanwir Khaliq. It is an endeavor to provide an objective and comprehensive format of functioning to all the health professionals at the Department of General Surgery here at PIMS. The aim is to inculcate uniformity in patient care as well to guide the team of doctors at the unit so that a methodical approach can be adopted at every level, thus maximizing the efficiency and the level of organization.

The theoretical knowledge presented in this booklet is up to date and has been organized in very practical terms, keeping in mind the facilities available and the difficulties encountered.

Lastly, I would like to thank Professor Dr. Tanwir Khaliq for giving me the tremendous opportunity of drafting these SOPs.

Dr. Talal Asif
January 2012.
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INTRODUCTION TO THE DEPARTMENT OF GENERAL SURGERY
PAKISTAN INSTITUTE OF MEDICAL SCIENCES
INTRODUCTION TO DEPARTMENT OF GENERAL SURGERY, PIMS, ISLAMABAD.

- The Department of General Surgery has been providing its professional services since 1987.
- The department is divided into three units. Unit 1 is headed by Professor Dr. Aslam Shah, who is also Head of Department. Unit 2 is headed by Professor Dr. M A Zahid and Unit 3 is headed by Professor Dr. Tanwir Khaliq.
- Here, immense emphasis is laid not only on enhancement of patient care but also on the quality of academic activities and training program.
- OPD, Emergency and OT days are divided amongst the three units.
- In-door facilities are available at Surgical Ward 5 and 6 with a sum total of 76 beds which are extended with the addition of extra beds to accommodate the load from On-Call days.
- Outpatient services are provided at the Surgical Clinic, which runs 6 days a week with approximately 150-200 patients seen each day.
- The department has been allocated 4 operation theatres, including the emergency OT, where an estimated 400-500 elective and emergency cases are dealt with each month.
- On every alternate Wednesday, joint meeting held at NORI hospital for MDM (Multidisciplinary Meeting) where cases are discussed to optimize patient care through multidisciplinary approach.
- Every Friday morning at 8:00 AM sharp, a surgical Grand Round is conducted, which has been our tradition for the last 20 years. At this weekly meeting, presentations are given and cases are discussed amongst participants from all the Surgery and Allied disciplines.
- Department of General Surgery, PIMS is approved for FCPS, MRCS and MS training, with our candidates producing excellent results in post graduate exams.
- Regular workshops and courses such as on the topics of Primary trauma care, Laparoscopic surgery and anastomosis are conducted frequently.
Introduction to Surgical Unit 3

(From Right to left) 1st row, Dr Nazia, Dr Israr Ahmad, Prof Tanwir Khaliq, Dr Shabana Jamal, 2nd row, Dr Sadia, Dr Shirza, Dr Sadia Tasleem, Dr Asad Tipu, Dr Roman, Dr Moazzam, Dr Asad, Dr Azhar, Dr Ismail, Dr Amna, Dr Maria, Dr Hafsa.

Unit In charge: Prof Tanwir Khaliq
Assistant Professors: Dr Shabana Jamal & Dr Israr Ahmad
Senior Registrar: Dr Nazia
Post Graduate Residents: Dr Gul Nasib (PGR 4)  
Dr Roman (PGR 4)  
Dr Azhar Ali Khan (PGR 2)  
Dr M Asad Tipu (PGR 2)  
Dr M Assad Javed (PGR 2)  
Dr Moazzam Ali (PGR 1)

House Officers: Dr Shirza, Dr Hafsa, Dr Maria, Dr Ismail, Dr Hassan, Dr Sadia, Dr Amna.
CLINICAL PRACTICE GUIDELINES
FOR PATIENT CARE AND HEALTH PROFESSIONALS
CLINICAL PRACTICE GUIDELINES FOR THE EMERGENCY ROOM (ER)

The patient comes to the ER.

If the patient is critically ill, he/she is shifted on a trolley or wheelchair to the CMO office by the ward boy deputed for this purpose.

The reception clerk registers the patient and give an ER slip.

The CMO examines the patient first. If the patient is critically ill or needs general surgery consultation, he refers the patient to General Surgery Unit on call.

The senior resident examines the patient first. Obtains and records vitals before taking any history. If there is cardio-respiratory compromise, begin resuscitation as per ACLS/ATLS protocols, following the sequence of Airway, Breathing and Circulation.

After thorough history and examination, the resident properly documents his findings, management and diagnosis. The House Officer is responsible for ensuring that all the investigations are carried out, the patient receives all the prescribed medications/injections, blood is arranged and where necessary, NG tube and catheter is passed.

All serious patients are admitted in the ER for observation and treatment. Any unstable patient is not referred to the OPD. The consultant on call is duly informed.

Any unstable patient is not shifted for X-rays, Ultrasound, FAST Scan or CT Scan UNLESS STABILIZED. Such patients are accompanied by a doctor when sent to the radiology department. Intubated patients may be shifted with an oxygen cylinder or with ambu bagging being carried out by House surgeon.

Serious patients needing immediate surgical intervention are shifted immediately to the OT with the consultant on call being informed immediately by the senior resident.
<table>
<thead>
<tr>
<th>Rule</th>
</tr>
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<tbody>
<tr>
<td>Keep all patients with surgical emergencies NPO (nil per os) till further decision.</td>
</tr>
<tr>
<td>Ensure that informed written consent is taken before surgical intervention.</td>
</tr>
<tr>
<td>Request any consultations needed for the patient on the ER slip. If necessary pursue the consultation yourself, particularly in poly trauma cases.</td>
</tr>
<tr>
<td>The attendants of the patient are thoroughly counseled regarding the condition, progress and prognosis of the patient.</td>
</tr>
<tr>
<td>Senior residents and registrar undertake frequent rounds and admit patients requiring admission. No patient is retained in the ER longer than 4 hours.</td>
</tr>
<tr>
<td>The ER slip of all admitted patients contains the bed number and treatment orders for the duty doctor and staff in the ward.</td>
</tr>
<tr>
<td>If the patient is being discharged, treatment is clearly mentioned on the ER slip and signed by the PGT/SR. House Officers are not allowed to discharge any patient.</td>
</tr>
<tr>
<td>In case of expiry, the death certificate is prepared by a PGT.</td>
</tr>
<tr>
<td>All local procedures, including chest tube insertion is undertaken in the minor OT under strict aseptic conditions. There should be no unnecessary delay in local procedures. All procedures including suturing is carried out by the doctors.</td>
</tr>
<tr>
<td>The details of all patients are recorded in the ER register for audit purposes.</td>
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</tbody>
</table>
Each patient arriving at the OPD is first register himself at the Registration Counter so that he receives an OPD Slip.

The OPD nurse and attendant identify all serious patients so that they can be seen on a priority basis and then referred to the ER.

The OPD attendants and nurses ensure that all patients have their OPD slip and that it is stamped, before seeing the doctor. They are responsible for allocating turns to the patients to maintain proper order.

House officers and PGTs are present in the male and female Filter Clinics. Every patient is seen on his/her turn in the Filter Clinic. They are supervised by the SR.

All patients are thoroughly seen and all history and examination findings are properly documented on the OPD slip. Any referrals are mentioned clearly. If consultation with another department is required, the reason for consultation is mentioned clearly.

If the patient does not need any investigations or the opinion of the senior doctor, the doctor sitting in filter clinic discharges the patient after ensuring the appropriate treatment. However, if the patient is not satisfied and insists on seeing the specialist, he may then be referred with the remarks about his request.

All prescriptions are written in clear hand writing, preferably in block letters. They are properly signed so that it is obvious which doctor has seen the patient.

The patient needing routine investigations and/or special investigations about which the filter clinic doctor is confident, is sent to the concerned diagnostic department after filling in appropriate request form bearing the personal details of patient along with the brief history and the reason for the request.
The patients who need senior consultant opinion are referred after taking the history and if necessary after preliminary investigations. Doctor accompanies the referred patient to discuss the case with the consultant.

All cases that need admission are discussed with the consultant. All admissions are done by the consultant him/herself or by a nominee assigned by him/her.

All efforts are made to admit the serious patients/patients with suspected carcinoma, given the limited number of beds. The condition of the patient is explained to the relatives.

When admitting a patient, procedure of admission is explained to the patient, bed and ward number are written on the OPD slip and the initial treatment to be administered.

A patient who is already given an appointment for possible admission is given priority over new patients.

All elective surgery appointments are given from the filter clinic, recorded on the Elective Surgery Register. The appointment date which is given to the patients means the date of possible admission. This is subject to the availability of beds in the wards. Appointments are also prioritized on medical grounds. Some operative procedures are recommended at a certain age/stage and not before that, so appointments are issued accordingly. These factors are explained to the patients and their attendants.

For patients being called for a local procedure on the next OT day, blood CP and Hepatitis B, C serology is advised.

Poor patients are referred to the Social Welfare Department for arrangement through Zakat fund/Bait-ul-Maal.

The pharmacy provides an updated list of available drugs in each OPD clinic.

The OPD timings are from 8 AM to 2 PM. Duty doctors report on time, in proper attire.
The staff on duty is responsible for making the file of the new admission, after the bed number has been mentioned on the OPD or ER slip of the patient. After all beds got occupied, extra beds are arranged for new admissions. Once extra beds also got occupied, then patients are managed on trollies and straight chairs.

The Resident of the respective bed takes a thorough history, performs detailed examination, makes a provisional diagnosis and plan of management. He documents these as Resident notes. He/ she also makes entries on the treatment sheet which include the generic name of the drug, the dosage regimen, route of administration and date of initiating the drug.

The house officer of the respective bed also documents the history and carries out all baseline investigations that include Blood CP, LFTs, RFTs, Serum Electrolytes, PT/ APTT, Hepatitis B, C serology, CXR, ECG in patients over 40. After the baseline investigations are complete, he/ she ensures that anesthesia fitness of the patient is carried out and consent is taken.

The house officers are responsible for the maintenance of the patient file and for carrying out all the investigations, consultations, dressings and other orders, as mentioned in the consultant round.

All PGTs and house officers document their daily morning progress notes before the consultant round begins. The notes are written in the SOAP format.

The PGT on duty enters the progress notes of all patients after the evening round. The house officer on duty helps to carry out all investigations, consultations and dressings.

Any change in the medication during the rounds is documented appropriately in the patients file as well as the treatment book of the nurses. In case of change of dosage, previous orders are cancelled and new orders are written, instead of over-writing.

The IV fluid orders includes the name of fluid, volume, rate of administration (drops or ml/min), the date and time of initiation.
Consultations from other departments are properly documented in the files with date and time.

In case of new admission during the evening or night hours, the PGT on duty informs the concerned specialist and take advice regarding the management, especially in complicated cases.

In case the patient's clinical condition deteriorates, senior doctor on duty are informed immediately. Details of patient condition are documented.

Clinically unstable patient is transferred to the Intensive care Unit (ICU). In case of non-availability of space in ICU, other local hospitals with the necessary facilities are contacted and patient is offered with the option to shift there if bed is available, in collaboration of hospital administration. Non availability of space in the ICU is documented in patient’s file.

In case of any emergency procedure, a written informed consent is always taken and preserved for record. All procedure notes are up to date. Procedure notes is the responsibility of the doctor carrying out the procedure.

Discharge planning begins with admission. The patient’s attendants are informed beforehand so that they can arrange transportation. The discharge certificates are made carefully by the house officers. Relevant clinical features, diagnosis, investigations and treatment given in the hospital is written. Also details of treatment advised including doses and duration of therapy and time of follow-up visit. If the patient is being discharged on request, it is mentioned clearly on discharge slip. The discharge certificates are clearly signed and counter checked by the registrar.

Families requesting for short leave or premature discharge are solely responsible for the consequences. Documentation is done in the patient file.

The patients file is a hospital property and a confidential document. Under no circumstances should it be handed over to patients attendants.

Only one attendant can stay with the patient. Other people can visit the patient during the visiting hours only. Children under twelve are not allowed to visit the patients.
The PGT or house officer of the respective bed presents the bed in the morning, apprising the consultants and the rest of the doctors, of the patient’s condition, any new complaints, abnormal investigations, progress regarding previous orders and proposed further plan of action.

The house officer and junior PGT on duty always remain in the ward with their patients.

The OT list is decided by the consultants. The senior PGT, with the help of junior PGTs and house officers ensures that the patients are prepared, their blood is arranged and that they have the necessary surgical items checked and ready.

The OT list is finalized by 11AM on the pre-op day. Copies of the OT list are dispatched to the private wards, blood bank, operation theatre number 3 and 4, OT head nurse and surgical ward 6 and 5 head nurse.

The PGT on duty writes the pre-op orders of all patients on OT list and counsels them regarding NPO. He performs a final check on all investigations and OT items.

The house officer ensures that the pre-op orders are carried out by the staff, blood cross matches are sent to the blood bank and that OT dresses are provided to the patients at night. The house officer ensures that the first two cases have reached the OT by 7:30 AM.

In case of an expiry, the PGT informs the senior, enter death notes on progress sheet and fill death certificate as early as possible.

Standard barrier nursing and isolation techniques are employed in cases of patients with infectious and communicable disease. This includes masks, gloves and careful handling of sharp objects/needles.

Dressing of all doctors should be decent. No informal clothing (jeans & T. shirts for males), party wears or excessive jewelry (for females) is allowed, during duty hours.
CLINICAL PRACTICE GUIDELINES FOR THE OPERATION THEATRE (OT)

Proper OT dress with mask, cap and OT shoes are worn in the operation theater area. No one is allowed to walk outside the theatre in greens and theatre shoes.

Before the procedure, the following checks are performed by the doctors and OT nurse:

- The patient’s identity and diagnosis is the same as documented in the accompanying file.
- The site and side of pathology is reassessed, reconfirmed and marked.
- The patient’s file is in order.
- All OT items are present.
- Patient is in the correct OT dress.
- Pre-op orders have been carried out. The patient’s blood pressure, pulse and fasting blood glucose is within.
- Informed consent is present.

PGs are not allowed to perform a moderate or major surgical procedure independently. A senior resident if permitted can do the procedures under direct supervision/assistance of the consultant.

Operation notes are written by the surgeon himself or the first assistant in a legible way with drawing of sketches.

Post-operative orders are written clearly and in detail, mentioning the drugs with dosage, route of administration and duration of therapy.

All operation notes conclude with correct swab, sponge and instrument count, duly signed by assisting staff nurse and operating surgeon.

Post-operative patient is only transferred to the ward when he/she has fully recovered from anesthesia.

Bed in the Intensive Care Unit (ICU) is arranged by surgical team, prior to operation, in case of major surgeries.
## CLINICAL PRACTICE GUIDELINES FOR BLOOD TRANSFUSION AND BLOOD BANK

The blood requisition slip is properly filled by the duty doctor. Ward, bed number and PCN No. is entered. The name of the requesting doctor is clearly written. The blood sample is drawn by the doctor and properly labeled.

All patients requiring emergency blood are helped and the CMO or the treating surgical resident inform the blood bank about the patient and how much blood is required.

The blood bank receives properly labeled blood sample and takes full written responsibility for issue of uncrossed match blood.

Blood is always transfused by the doctor on duty. There is full identification of the patient, matching of blood bag number and blood group with that of the patient given on the receipt. Blood transfusion is started when it reaches room temperature. The vital signs of patient are recorded before initiation of transfusion. The date and time of transfusion is documented.

If there is slightest suspicion of transfusion reaction, transfusion is immediately stopped the blood bank is informed. Blood bag is returned to investigate the reason for the reaction.

Patients/ attendants are clearly explained that blood and blood products are available on donation or exchange basis only.
CLINICAL PRACTICE GUIDELINES FOR LABORATORY INVESTIGATIONS

Patients need a PCN (Personal Control Number), which can be obtained from the reception in the OPD or the emergency counter.

Appropriate specimen containers are clearly labeled with the patient’s name and PCN. Investigation slip are prepared with the patient’s PCN, date, patient’s name, age, sex, nature of specimen, investigation required and doctor’s signature. For investigations like histopathology, history and examination findings are mentioned on investigation request form. Without proper history and physical findings errors of interpretation may occur.

Different types of tubes are used for collecting the specimens. Purple topped tubes are used for Complete Blood Picture (CP), ESR, Malarial Parasite and Electrophoresis. Blue topped tubes are used for coagulation studies. Yellow top jell tubes are used for all serum tests.

Urine specimens are sent urgently as after half an hour, the specimen if not processed, becomes unsatisfactory and may yield the wrong result.

For Blood Cultures, culture bottles are collected from the lab, wards or store.

The histopathology specimens are submitted in wide mouthed container containing at least five times volume of the specimen in buffered 10% formalin.
CLINICAL PRACTICE GUIDELINES FOR THE PROFESSOR

Overall supervision of patient care, academic activities and services delivered through ER, OPD and indoor facilities (wards). Is available in OPD, ward and OT during working hours.

In charge of administrative affairs of the unit.

Selection and recruitment of Postgraduate Trainees and House Officers.

Supervision of clinical rounds and record keeping of the entire medical staff.

Helping the hospital administrators in various matters of hospital interest.

Making sure that the training program is fully compliant with recommendations of PMDC (Pakistan Medical and Research Council) and CPSP (College of Physicians and Surgeons Pakistan).

Representing the hospital in national and international meetings and conferences.

Performing elective surgeries and taking lead in difficult cases. And performing major surgical emergencies when on call.
# CLINICAL PRACTICE GUIDELINES FOR ASSOCIATE, ASSISTANT PROFESSORS AND SENIOR REGISTRAR

<table>
<thead>
<tr>
<th>Task</th>
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<tr>
<td>Assisting in the administrative affairs of the ward and hospital, as directed by the professor.</td>
</tr>
<tr>
<td>Supervision of the medical services administered via the OPD, ER and wards.</td>
</tr>
<tr>
<td>Support and supervision of residents and house officers.</td>
</tr>
<tr>
<td>Supervision of clinical rounds.</td>
</tr>
<tr>
<td>Representation in international and national conferences.</td>
</tr>
<tr>
<td>Elective surgery and lead in difficult cases.</td>
</tr>
<tr>
<td>The senior registrar will be the first on call consultant for emergency cases. Assistant professors will be second on call for difficult cases.</td>
</tr>
</tbody>
</table>
### CLINICAL PRACTICE GUIDELINES FOR RESIDENTS

- **Is** the first line of contact for patients in the ER, OPD and wards and initiates management after history, examination and provisional diagnosis.

- Assists in emergency and elective surgeries. Surgeries is performed by him/her under supervision of consultants.

- Keep strict check on working of staff concerning the management, progress, intake, output, medication and general care of their patients.

- **Is** responsible for guidance and supervision of house officers.

- He/she immediately informs the consultant of any emergencies or mishaps.

- Ensures proper documentation especially daily progress notes, procedure notes, death certificates, pre and post op orders.

- Carries out pre-operative preparation of all patients on the OT list.

- Presents hi/her beds during the clinical rounds.
### CLINICAL PRACTICE GUIDELINES FOR HOUSE OFFICERS

<table>
<thead>
<tr>
<th>Task</th>
<th>Responsibility</th>
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<tbody>
<tr>
<td>House officer takes the history of the patient and writes daily progress notes in SOAP format.</td>
<td>Patient’s file maintenance is the responsibility of the house officer.</td>
</tr>
<tr>
<td>Patient’s file maintenance is the responsibility of the house officer.</td>
<td>All house officers check patient’s management, feeding, bed care, intake / output charts, and other progress charts.</td>
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<tr>
<td>All house officers check patient’s management, feeding, bed care, intake / output charts, and other progress charts.</td>
<td>The house officers is responsible for dispatch and receipt of investigations, consultations and discharge of patients.</td>
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<td>The house officers is responsible for dispatch and receipt of investigations, consultations and discharge of patients.</td>
<td>The house officer is present in the ward at all times.</td>
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</table>
CLINICAL PRACTICE GUIDELINES FOR PROTECTION AGAINST OCCUPATIONAL RISKS

For blood borne infections, take care to avoid needle stick and sharp injury, avoid recapping of needles and after use, transfer to a puncture proof container. For patients known to be positive for Hepatitis B, C or HIV, wear double gloves during surgery.

To handle blood contaminated material, no touch techniques and gloves are used. Wash hands after blood contact even if gloves were worn.

Wear gloves when in contact with blood, body fluids, excretions, secretions and contaminated items. Wash hands immediately after touching infective material.

Use surgical masks for some protection against air borne infections.
CLINICAL PRACTICE GUIDELINES
FOR ELECTIVE CASES
IN THE OUT PATIENT DEPARTMENT (OPD)
THYROID NODULES

HISTORY
Patient comes to you complaining of a neck mass. Ask about:

- Time since it has been present?
- Whether it has experienced a phase of rapid growth over a short period of time?
- Hoarseness of voice?
- Dysphagia?
- Dyspnea? Cough?
- Pain? Especially bone pain?
- Eye symptoms? Difficulty closing the eyes? Gritty feeling in the eyes?
- Symptoms of hyperthyroidism?
- Symptoms of hypothyroidism?
- Childhood head and neck irradiation?
- Family history of thyroid cancer? Family history of benign thyroid disease? Family history of autoimmune diseases?
- Other co morbidities?

EXAMINATION
- Note patient’s age and sex. Being less than 20 or greater than 70 years or being male, concurs risk of Ca Thyroid.
- Note the rate and rhythm of the pulse (look out for AF in hyperthyroidism).
- Inspect and palpate for the nature of the lump. DECIDE WHETHER THERE IS A SINGLE NODULE, MANY NODULES OR DIFFUSE ENLARGEMENT OF THE GLAND. Note the regularity of the mass.
- Check that the mass moves up on swallowing.
- Palpate the trachea.
- Palpate for cervical lymphadenopathy.
- Percuss over the sternum for retrosternal extension.
- Auscultate for a systolic bruit.
- Look for signs of Graves’ Disease such as exophthalmos, lid lag, pretibial myxedema, tremor and increased tendon reflexes. These signs are NOT uncommon.
INVESTIGATIONS

- Order TFTs.
- Ultrasound.
- If TFTs indicate hyperthyroidism, order thyroid scan (contra-indicated in pregnancy), available at NORI.
- Select patients for FNAB. We perform fine needle biopsy while investigating all nodules especially those greater than 1 cm, hypothyroid patients (cold nodules) or irregular masses.
- Plain radiograph of the chest and thoracic inlet when symptoms indicate retrosternal extension.
- CT Scan after discussing the case with your consultant.
- Autoimmune antibody profile in case of strong suspicion, after discussion with the consultant.
- ECG

TREATMENT

- For euthyroid patients with benign masses, date for elective surgery is given. Option of radioactive iodine ablation available at NORI is offered.
- For hyperthyroid patients, Carbimazole (Neo Marcazole) 20mg BD or Propylthiouracil (Procarbizole) 200mg BD is prescribed. These patients are followed in the OPD. The aim is euthyroidism. Date for elective surgery is given after this is achieved.
- Beta blockers are given for tremors and tachycardia.
- Thyroxine 50mcg is prescribed for hypothyroid patients. These patients are followed until euthyroid. Date for surgery is given after this is achieved. BEWARE! Prescribe thyroxine with caution in patients with pre-existing heart disease.
- Patients with diagnosed Ca Thyroid are discuss with the consultant and admitted if necessary.
BREAST LUMPS AND OTHER COMMON BREAST PROBLEMS

HISTORY
The patient may complain of a palpable breast mass or thickening, change in the size or appearance of the breast, breast pain, skin changes, nipple discharge or inversion. Ask about:
- Any change in the general appearance of the breast, such as an increase or decrease in size? A change in symmetry?
- New or persistent skin changes.
- New nipple inversion.
- If a nipple discharge is present, whether unilateral or bilateral? Timing, colour and frequency?
- The characteristics of any breast pain. The relationship of symptoms to menstrual cycles (cyclic or non-cyclic)? The location within the breast (or both breasts)? The duration? Whether it is aggravated or alleviated by any activities or medications.
- The presence of a breast lump (mass) and its evolution, including how it was first noted, how long it has been present and whether it has changed in size.
- Whether a lump waxes and wanes during the menstrual cycle? Benign cysts may be more prominent premenstrually and regress in size during the follicular phase.
- Any family history of breast cancer?
- Reproductive history e.g. parity, age at menarche, age at menopause, breast feeding, last menstrual period?
- Use of oral contraceptive pills.
- Previous breast surgery.
- Weight loss, bone pain, anorexia? Fever?
- Any other co morbidities.

EXAMINATION
Proper consent is taken from the patient before examination. If a female surgeon is not available for examination, all male surgeons should request the presence of a female staff member.
- Note the age of the patient. The risk of cancer increases with age.
- Inspect for symmetry, masses, skin dimpling, nipple retraction and discharge, peau d’orange, erythema, warmth.
- Palpate each quadrant of the breast and the axillary tail. The size of any mass should be measured and its location, mobility, and consistency recorded.
- Perform a regional lymph node examination e.g. the axillary, the supraclavicular and the cervical lymph nodes. Look for mobile or fixed nodes.
- General examination for distant metastasis e.g. hepatomegaly, jaundice, ascites or pleural effusion.
INVESTIGATIONS

- The objective is to exclude cancer of the breast.
- For patients with a new breast complaint, Mammography is ordered in patients ≥35 years and ultrasound in patients ≤35 years.
- FNAC or core needle biopsy in case of strong suspicion of cancer, giving the patient appointment for the next OT day.
- Triple assessment i.e. clinical examination, radiological assessment and cytology, is the minimum standard of care for a breast mass or asymmetric thickening of the breast.
- BLIs and hepatitis profile is ordered for patients being given an appointment for FNAC or core biopsy.
- Ultrasound abdomen/pelvis, CXR for suspicion of metastasis.
- CT chest and abdomen in advanced cases, after discussion with the consultant.
- ER, PR and HER 2neu, after discussion with the consultant.

TREATMENT

- Patients with cytological diagnosis of malignancy are admit for MRM and consultation with NORI.
- Patients with benign breast mass, proven on triple assessment are counsel and if desiring, given elective date for excision.
- Patients with breast abscess are referred to ER for drainage.
- Those with cyclical pain are referred to gynecology for short course of anti-estrogen treatment.
- Patients with mastitis or ductal ectasia are prescribe antibiotics, pain killers, warm compresses and are referred to ER for drainage, if deemed necessary.
HERNIAS

HISTORY
The patient complaining of a bulge in the abdominal wall. Ask about:
- Site of hernia? Unilateral or bilateral?
- Time since its presence?
- Any pain or aching sensation? Local discomfort? If painful, has it suddenly become persistent and severe?
- Does the lump increase with standing and reduce with lying down?
- Previous history of surgery (incisional or parastomal) or spontaneous?
- If positive surgical history, any post op complications e.g. incision site infection?
- Nausea, vomiting, fever, SIGNS OF BOWEL OBSTRUCTION (points to suspicion of strangulation or incarceration)?
- Occupational history (heavy lifting etc)?
- Co morbidities predisposing to hernia e.g. coughing (COPD or asthma), constipation, BPH, obesity, ascites?
- Pregnancy?

EXAMINATION
- All patients with tender hernia site, symptoms and signs of intestinal obstruction and toxic look are referred to the ER for suspicion of obstruction or incarcerated hernia.
- Examination is performed to determine the:
  - Site of hernia i.e. inguinal, epigastric, umbilical, incisional etc?
  - Size? Shape?
  - Colour and temperature of overlying skin? State of surrounding tissues?
  - Tenderness?
  - Composition? Fluctuant or rubbery?
  - Cough impulse?
  - Compressibility?
  - Reducibility?
- General examination for causes of raised intra-abdominal pressure e.g. abdominal masses, ascites.

INVESTIGATIONS
- Ultrasound and CT Scan in doubtful cases or for differential diagnosis, after discussion with the consultant.
TREATMENT

- Elective date to all patients with hernias that are narrow necked, difficult to reduce, highly symptomatic or have episodes of bowel obstruction.
- Patients with hernias that are moderately symptomatic, cosmetic or interfere with work, may also be offered surgical repair.
BLEEDING PER RECTUM

HISTORY
Patient is asked about the:

- Colour of blood? Bright red or black?
- Amount of blood?
- Is blood mixed with feces? If so, source is higher than the sigmoid colon.
- Is blood on the surface of feces? If so, then the source of bleed is from the sigmoid colon, rectum or anal canal.
- Does bleeding FOLLOW defecation? If so, think of haemorrhoids.
- Does blood pass by itself with clots? Think of diverticular disease, IBD, rapidly bleeding carcinoma, massive upper GI bleed (rare).
- Is there blood on underwear, toilet paper or clothes? If so, think of haemorrhoids or fissure.
- Is there mucus with blood? Suggests carcinoma.
- Is there blood, mucus, abdominal pain, fever, malaise and pus? Think of colitis.
- Pain on defecation? Suggests fissure-in-ano or carcinoma of the anal canal.
- Tenesmus? Change in bowel habit? Abdominal pain? These symptoms should raise alarm.
- Symptoms of anemia, anorexia, weight loss?
- Other co morbidities e.g. previous history of IBD, colorectal polyps, BLEEDING DIATHESIS?
- Family history of colorectal cancer.

EXAMINATION

- Age of the patient is noted. Cancer is common older patients.
- Digital rectal examination is performed and proctoscopy, as guided by history.
- General examination for signs of metastasis e.g. anaemia, jaundice, hepatomegaly.
- Sites of superficial lymph nodes are examined particularly inguinal region.

INVESTIGATIONS

- If there is strong suspicion of colorectal cancer, colonoscopy and biopsy is advised.
- Barium enema.
- Upper GI endoscopy for malena.
- Blood CP for anaemia and platelet count, ESR, LFTS, PT/APTT, Hepatitis B,C serology.
- Ultrasound and CT abdomen/pelvis on suspicion of metastasis, after discussing with the consultant.

TREATMENT

- All cases with heavy bleed are referred to the ER.
- Treatment will vary with the aetiology.
HAEMORRHOIDS

HISTORY
The patient complains of recurrent post defecatory bleeding. Ask:
- Is it bright red?
- Amount? Noticed on underwear, toilet paper or dripping into the toilet?
- Is blood mixed with stools? In haemorrhoids, it is not.
- Is there pruritis ani, mucus discharge or perianal discomfort?
- Pain? Presence of pain suggests complicated piles.
- Any features of prolapse e.g. lump appearing at anal margin after defecation that spontaneously reduces or needs manual reduction.
- Co morbidities e.g. obesity, constipation, difficult child birth?

EXAMINATION
- External examination of anal skin and DRE is performed. Look for prolapsed and thrombosed piles.
- Proctoscopy to visualize the haemorrhoids.
- Determine the degree of piles.
- Abdominal examination.

INVESTIGATIONS
- Barium enema and colonoscopy is advised if there is any doubt, to rule out other differentials.
- Blood CP may show anaemia.

TREATMENT
- Medical treatment includes avoidance of constipation and straining with laxatives and bulking agents e.g. isphagula husk, analgesia and sitz bath for thrombosed piles.
- Painful prolapsed haemorrhoids are referred to the team on call for injection treatment.
- Date for Elective haemorrhoidectomy is given to patients with second and third degree piles.
FISSURE-IN-ANO

HISTORY
The patient complains of:
- Acute anal pain, severe on defecation.
- Pain persisting for minutes or hours after defecation, throbbing and aching in nature.
- Streak of blood on stool or underwear.
- Constipation and fear of defecation due to pain.
- Co morbidities e.g. Crohn’s disease, difficult child birth.

EXAMINATION
- Gently part the skin of the anus, looking for a split in the anal skin. That is all that the patient will allow due to pain.
- Anal sphincter will be seen to be in spasm.
- If pain and tenderness is not severe, perform a careful rectal examination.

INVESTIGATIONS
- None necessary.

TREATMENT
- Lignocaine gel.
- Laxative and stool bulking agents.
- 0.2% GTN ointment for sphincteric spasm BD for six weeks.
- Very rarely surgery may be needed for which patient is admitted.
COLORECTAL CANCER

HISTORY

The patient may complain of:
- Abdominal pain.
- Tenesmus.
- Change in bowel habit. Mucus PR.
- Hematochezia or melena.
- Weakness.
- Symptoms of anaemia without other gastrointestinal explanations.
- Weight loss.
- Abdominal mass.
- Sacral pain or sciatica.
- Family history of colorectal cancers.
- Predisposing factors such as IBD, previous history of polyps, irradiation, lack of dietary fibre.
- Other co morbidities.
- Symptoms of bowel obstruction.

EXAMINATION

PATIENTS WITH COLORECTAL CANCER FREQUENTLY PRESENT AS EMERGENCIES WITH OBSTRUCTION, PERFORATION AND VERY RARELY ACUTE PR BLEEDING. SUCH PATIENTS ARE REFERRED TO THE ER.

- PR examination is performed for blood, mucus or a mass.
- General examination for mass, hepatomegaly, jaundice.
- Examination of superficial lymph nodes.

INVESTIGATIONS

- BLs e.g. blood CP, LFTs, RFTs, S. Electrolytes, hepatitis serology.
- Colonoscopy with biopsy.
- Barium enema.
- Ultrasound abdomen/pelvis.
- CXR.
- CT abdomen/pelvis for staging purposes, after discussion with the consultant.

TREATMENT

- Emergency presentations are referred to the ER.
- Elective cases are admitted for detailed workup, staging, curative or palliative surgery and for multidisciplinary approach involving surgeons, oncologists and radiologists.
FISTULA-IN-ANO

HISTORY
The patient may complain of:
- Perianal drainage of pus, mucus, blood or fecal matter.
- Perianal irritation.
- Perianal discomfort.
- Perianal swelling and skin excoriation.
- History of anorectal abscess that drained spontaneously or with surgical intervention.
- History of trauma, diabetes mellitus, Crohn’s Disease, tuberculosis or anorectal tumors in rare cases.

EXAMINATION
- Examination is aimed at confirmation of the presence of a fistula, its track and its type i.e. whether inter-sphincteric, trans-sphincteric, supra-sphincteric or extra-sphincteric.
- Perineum is examined looking for an opening near the anus.
- DRE is performed, which may reveal a palpable fibrous track, pressure on which may cause discharge.
- Proctoscopy may help define an internal opening.
- Examination under anaesthesia, with probing, to identify the fistula track.

INVESTIGATIONS
- MRI, after discussion with the consultant.
- Colonoscopy, if suspected association with Crohn’s disease.
- Fistulogram, if available.

TREATMENT
- Surgical treatment is offered to patients and appointment is given for elective surgery.
- For patients with sepsis of the track, antibiotic prophylaxis is given.
- Referral to General Medicine if Crohn’s Disease is diagnosed, for treatment of IBD.
RECTAL PROLAPSE

HISTORY

The patient may complain of:
- Protruding mass from the anus, especially during defecation, which may reduce spontaneously or need manual reduction.
- Blood and mucus PR.
- Perianal pain.
- Fecal incontinence.
- Pruritis ani.
- Tenesmus.
- History of constipation, neurologic disease or difficult vaginal deliveries in female patients.

EXAMINATION

- Perineal examination. For prolapsed part between fingers. Classify into PARTIAL (involving mucosa only) or COMPLETE (involving all the layers of the rectal wall).
- Mucosal prolapse is thin and usually 4 cm long with a lax sphincter on PR exam.
- Complete prolapse is thick, up to 12 cm long and the patient may be unable to contract the sphincter muscles once prolapsed part is reduced.

INVESTIGATIONS

- None necessary. The diagnosis is a clinical one.

TREATMENT

- For mucosal prolapse, laxatives and stool bulking agents are prescribed. Appointment on next OT day is given for excision of prolapsed mucosa or submucosal sclerosants.
- Surgical repair is offered to patients with complete prolapse (perineal or transabdominal rectopexy).
DYSPHAGIA

HISTORY

Patient is asked the following questions:

- Do you have problems initiating a swallow or do you feel food getting stuck a few seconds after swallowing? (Helps distinguish oropharyngeal from esophageal dysphagia.)
- Do you cough or choke or is food coming back through your nose after swallowing? (Coughing or choking suggests aspiration and oropharyngeal dysphagia.)
- Do you have problem swallowing solids, liquids, or both? ( Liquids not solids suggests a motility disorder; solids progressing to liquids suggests a benign or malignant stricture.)
- How long have you had problems swallowing and have your symptoms progressed, remained stable or are they intermittent? (Rapidly progressive dysphagia is concerning for malignancy.)
- Could you point to where you feel food is getting stuck?
- Do you have other symptoms such as loss of appetite, weight loss, nausea, vomiting, regurgitation of food particles, heartburn, vomiting fresh or old blood, pain during swallowing or chest pain?
- Do you have medical problems such as diabetes mellitus, scleroderma, neuromuscular disorders (stroke, multiple sclerosis), cancer?
- Have you had surgery on your larynx, esophagus or stomach? Have you received radiation therapy in the past?
- What medications are you using now (ask specifically about alendronate, ferrous sulfate, quinidine, ascorbic acid, aspirin and NSAIDs)?
- Have you ingested a corrosive substance or other foreign body? (Commonly seen in children, suicide attempts or psychiatric patients).

EXAMINATION

- Look for signs of anaemia, weightloss.
- Koilonychia (Plummer Vinson Syndrome).
- Abdominal examination for liver secondaries.
- Superficial lymph node examination.
- Check for swallowing of the patient (Swallow Test).
- Cranial nerves X to XII are examined.
INVESTIGATIONS
The choice of investigations will depend on suspected aetiology.
- BLIs, LFTs, RFTs.
- CXR.
- Barium swallow and meal.
- Upper GI endoscopy and biopsy.
- CT Chest.

TREATMENT
- The treatment will vary with the etiology.
OESOPHAGEAL TUMORS

HISTORY

The patient may complain of:
- Dysphagia, usually rapid onset, initially for solids, then for fluids.
- Weight loss, anorexia, anaemia.
- Epigastric or retrosternal pain.
- Hoarseness.
- Cough, haemoptysis, respiratory symptoms.
- Rarely neck swelling (SVC obstruction).
- Rarely symptoms of Horner’s syndrome.
- History of smoking and rarely alcohol in our set up.
- History suggestive of GORD (gastro-oesophageal reflux disease).

EXAMINATION

- Patient’s age is noted. New complaint of dysphagia in patients over the age of 45 years is cancer until proven otherwise.
- Abdominal examination for irregular liver.
- Superficial lymph node examination.

INVESTIGATIONS

- Upper GI Endoscopy and biopsy.
- Barium swallow.
- CT Chest and Abdomen for staging purposes.
- Trans-oesophageal ultrasound is available in Islamabad, useful for staging as well.
- Base line investigations.
- CXR.

TREATMENT

- All new cases are admitted for work up and possibility of curative surgery. A multidisciplinary approach involving oncologists (NORI) and surgeons will be used. For squamous cell carcinoma, radiotherapy and resection is done. For adenocarcinoma, chemotherapy and resection is used.
- Most cases are too far advanced for curative surgery and are referred to NORI for chemotherapy or radiotherapy and to Gastroenterology for stenting, thus ensuring palliative care.
HIATUS HERNIA

HISTORY
- Mostly asymptomatic. Usually an accidental finding on radiological studies or endoscopy.
- Patient complaints may include:
  - Retrosternal burning pain worse on bending, stooping or lying down.
  - Heart burn.
  - Acid regurgitation into the mouth.
  - Pain relieved by antacids.
  - Pain may even radiate to the jaw or left arm.
  - Cough, hiccups or palpitations.
  - Postprandial fullness.
  - Nausea, retching.
  - Odynophagia and dysphagia in advanced cases.
  - Bleeding from ulceration of oesophageal lining.
- Ask about co morbidities.

EXAMINATION
- Usually does not reveal any important findings.

INVESTIGATIONS
- Blood CP, which may indicate anaemia.
- Barium swallow.
- CT Chest or upper GI endoscopy after discussion with the consultant.

TREATMENT
- PPIs, promotility are agents.
- Advice regarding reduction of weight, cessation of smoking and sleeping propped up.
- In patients with paraoesophageal (rolling) hernia, dysphagia and persistent symptoms are given appointment for elective surgery.
- Patients with suspected volvulus or obstruction are referred immediately to the ER.
ELECTIVE SPLENECTOMY

HISTORY
- Patient is usually referred from the General Medicine department for definitive treatment of:
  - Haematological disorders such as ITP, haemolytic anaemias, leukemias and lymphomas.
  - Inflammatory disorders such as Rheumatoid arthritis, SLE or sarcoidosis.
- Rarely, patient will have a diagnosis of splenic abscess, hydatid cyst or primary tumors.

EXAMINATION
- Unremarkable in cases without splenomegaly (e.g. ITP).
- Palpable spleen in cases involving splenomegaly (e.g. leukemias).
- Tenderness in left upper quadrant.
- Jaundice and anaemia in cases of haemolytic anaemia.
- Fever, tachycardia in cases of abscess.
- Systemic findings characteristic of the underlying disorder e.g. characteristic joint deformities of Rheumatoid arthritis.

INVESTIGATIONS
- Blood CP.
- US Abdomen/Pelvis.
- CT Abdomen/Pelvis after discussion with the consultant.

TREATMENT
- Vaccination against pneumococcus, meningococcus and H. Influenzae is prescribed. Appointment is given at least 2 weeks after vaccination date in cases that can be delayed (e.g. ITP).
- Patient is admitted for surgical intervention.
- In cases of ITP, at least 6 units of platelets are arranged, preoperatively.
CHOLELITHIASIS (ELECTIVE CHOLECYSTECTOMY)

**HISTORY**
- If any complications of cholelithiasis such as acute cholecystitis, perforation, obstructive jaundice, cholangitis or pancreatitis is suspected, patient is referred to the ER.
- Patients coming to the OPD may present in the following manner:
  - Asymptomatic, with gallstones discovered on ultrasound done for other indications.
  - Patients with previous history of gallstone symptoms, complications and radiologic evidence of gallstones.
  - Patients with recurrent biliary type symptoms especially biliary colic.

**EXAMINATION**
- If there is any fever, tachycardia, diaphoresis, jaundice, localized tenderness and guarding in RHC, refer the patient to the ER.
- Patients being selected for elective cholecystectomy should essentially have a benign systemic examination.

**INVESTIGATIONS**
- Ultrasound abdomen/pelvis if not already done.

**TREATMENT**
- Asymptomatic patients are counseled regarding potential complications. No intervention to be done.
- Surgery is offered to patients who have a history of recurrent biliary symptoms or previous history of complications. Appointment for surgery is given.
- Patients arriving on their appointment date are admitted.
GASTRIC TUMORS

HISTORY
Diagnosis is suspected when the patient presents with the following complaints:

- Persistent abdominal pain, prominent in the epigastric region.
- Vague dyspepsia. New onset dyspepsia over the age of 45 should raise suspicion.
- Anorexia, nausea, weight loss and early satiety.
- Dysphagia when involving the cardiac area.
- Vomiting when involving the pyloric area.
- Symptoms of anaemia.
- Rarely, upper GI bleed.
- Family history.

EXAMINATION

- Palpable epigastric mass.
- Hepatomegaly.
- Palpable left supra-clavicular lymph nodes (Virchow’s node, Troisier’s sign), left axillary node.
- Ascites.
- For academic purposes, look for a periumbilical nodule (Sister Mary Joseph’s node), enlarged ovary (Krukenberg's tumor) or a mass in the cul-de-sac on rectal examination (Blumer’s shelf).
- Rarely, paraneoplastic syndromes such as microangiopathic hemolytic anemia, membranous nephropathy, hypercoagulable states (Trousseau's syndrome), acanthosis nigricans and diffuse seborrheic keratoses.
- Signs of anaemia.

INVESTIGATIONS

- Baselines particularly Blood Cp, LFTs, RFTs, ESR.
- Upper GI endoscopy with biopsy.
- Ultrasound abdomen/pelvis.
- CT Thorax/Abdomen/Pelvis for staging, confirmation of linitis plastic.
- CXR.
- Barium meal.
- CEA, CA 19-9 and CA 125 tumor markers.
- Diagnostic laparoscopy is an option, which can be utilized in difficult cases.

TREATMENT

- Patient are admitted for detailed workup, staging, suitability of surgical intervention and multidisciplinary action, particularly involving oncologists of NORI.
PANCREATIC CANCER

HISTORY
The patient presents with:
- Obstructive jaundice with pruritis, dark urine and pale coloured stools.
- Upper abdominal pain, usually prominent in the epigastric region, that radiates to the back.
- Weight loss, fatigue, malaise, nausea and dyspepsia.
- Rarely, features of acute pancreatitis.
- Questions about other co morbidities especially recent onset of diabetes mellitus are asked.
- Family history.

EXAMINATION
Examination may reveal:
- Jaundice.
- Epigastric mass.
- Hepatomegaly.
- Palpable gallbladder (Courvoisier’s Law).
- Ascites.
- Thrombophlebitis migrans.
- Rarely splenomegaly due to splenic vein thrombosis.
- Virchow’s nodes.
- Rarely, nodular fat necrosis (pancreatic panniculitis).
- DVT or peripheral arterial disease (Trousseau’s syndrome) due to hypercoagulable state.

INVESTIGATIONS
- Blood CP, LFTs, ESR, Blood sugar.
- Serum CA 19-9.
- US Abdomen/Pelvis.
- CT Thorax/Abdomen/Pelvis.
- ERCP, MRCP, after discussion with the consultant.
- Ultrasound or CT guided FNAC, after discussion with the consultant.

TREATMENT
- Patient is admitted for detailed work up and staging.
- Once investigations are complete, oncologist from NORI is consulted, for decision regarding palliative care or curative resection.
VARICOSE VEINS

HISTORY

The patient may complain of:

- Tortuous dilated veins in the leg leading to aesthetic concerns.
- Pain or aching discomfort in the affected limb, mostly towards the end of the day, relieved by sitting with the legs elevated.
- Leg heaviness, edema and swelling.
- Cramps and exercise intolerance.
- Pruritis, burning sensation, numbness, tingling and skin changes in the affected limb.
- Rarely, the patient may present with the complications of varicose veins, mentioned later.
- Ask about risk factors. The most common risk factors include advancing age, family history of venous disease, increased body mass index, smoking, a history of lower extremity trauma, prior venous thrombosis, occupational prolonged standing and, in women, pregnancy.
- Ask about co morbidities especially PREVIOUS DVT, peripheral arterial disease, heart failure, diabetes, arthritis.
- In female patients take menstrual history and use of oral contraceptives. Pain due to varicose veins may be exacerbated with pregnancy, exogenous hormonal stimulation or with the menstrual cycle.

EXAMINATION

- Patient is examined while standing up. Site and size of the veins, complications such as oedema, eczema, ulcers, lipodermatosclerosis, superficial thrombophlebitis, haemorrhage skin pigmentation and stasis dermatitis are assessed.
- While the patient is standing, look for cough impulse, palpable thrill or saphenovarix at saphenofemoral junction.
- Course of the vein is palpated for defects in deep fascia.
- For academic purposes, Trendelenburg’s test is carried out to assess the site of incompetent veins. With the patient supine, elevate the leg, empty the veins, apply tourniquet or examining hand just below the saphenofemoral junction and ask the patient to stand. If the veins fill with the occlusion in place, then the perforators are incompetent. If the veins fill rapidly after removal of the occlusion, then the valve at saphenofemoral junction is incompetent. Repeat the test at different levels to determine the level of incompetent perforators. Once above and below the knee is usually sufficient for incompetence of mid thigh perforators and saphenopopliteal junction, respectively.
- Perthes' walking test. Perform when raising the leg in supine patient fails to collapse the varicose veins. Apply tourniquet just below the knee. Ask patient to stand repeatedly on tip toe and relax. Failure of collapse of varicose veins may indicate DVT or reflux through incompetent valves in deep or communicating veins. Its importance is that DVT contraindicates varicose vein surgery.
- Percussion impulse is transmitted up or down the superficial veins.
- Auscultation to rule out arteriovenous fistula.
- Abdominal examination. In female patients, make sure she is not pregnant. In male patients, testicular examination.
INVESTIGATIONS

The following tests are prescribed:
- Doppler studies.
- Duplex ultrasonography.

TREATMENT

- For patients with mild varicosities, compression stockings and elevation of the leg periodically is advised.
- Elective surgery is offered to patients with incompetence of saphenofemoral junction, saphenopopliteal junction and thigh perforators.
- Local stab avulsions and long saphenous vein stripping is done in our hospital.
INTESTINAL TUBERCULOSIS

HISTORY
ACUTE ABDOMEN IS A FREQUENT PRESENTATION IN THESE PATIENTS. THEY ARE REFERRED TO THE ER!
Have a high index of suspicion for this disease as the symptoms are often vague. Suspect chiefly in young adults. The patient may present to the OPD with:
- Nonspecific chronic abdominal pain. The pain may be dull or colicky.
- Fever and night sweats.
- Anorexia, fatigue, weight loss, diarrhea, constipation or blood in the stool.
- Respiratory symptoms.
- Previous history of pulmonary TB.
- Family history of TB.
- Other co morbidities suggesting immunocompromise such as malnutrition in our setup.

EXAMINATION
- The abdominal examination may be unremarkable.
- Intestinal tuberculosis frequently involves the terminal ileum and ileocaecal region. Hence a well-defined, firm, usually mobile mass may be palpable in the right lower quadrant.
- Abdominal distention.
- Ascites is frequently present.
- Fistulae or fissures on rectal examination.
- Chest signs.
- Palpable abdominal lymph nodes in the very frail patients.

INVESTIGATIONS
Consult with the seniors regarding the choice of investigations as tissue biopsy and histology is the only definitive means of diagnosis.
- CXR.
- Blood CP with Peripheral Smear, ESR, LFTs, RFTs, Serum Electrolytes.
- Tuberculin skin test.
- Sputum microscopy and culture.
- Ascitic fluid R/E.
- Abdominal X-Ray.
- US Abdomen/Pelvis.
- Barium studies.
- CT Abdomen/Pelvis.
- Intestinal tissue biopsy at laparoscopy or laparotomy.
TREATMENT

- ATT is started for diagnosed cases, with four drugs, rifampicin, isoniazid, pyrazinamide and ethambutol for the first two months. Counsel the patient that the therapy will continue from 12-18 months. Advise the patient regarding regular follow up.
- Patients with suspected complications are admitted.
STOMA FOLLOW UPS

HISTORY AND EXAMINATION
Listen to patient concerns and perform examination of the stoma, whether ileostomy or colostomy, for the following complications:

- Peristomal skin breakdown due to ulceration.
- Effluent contact damage (irritant contact dermatitis), usually involving skin on inferior aspect of the stoma. Presents as denuded skin.
- Allergic reactions (allergic contact dermatitis), due to products used to protect peristomal skin, characterized by erythema, blistering and pruritus.
- Mechanical trauma, presenting as denuded skin that result from repeated removal of adhesive products or overly aggressive cleansing techniques.
- Significant stomal bleeding due to vigorous cleansing techniques.
- Parastomal hernia formation.
- Stomal stenosis, identified by digital examination.
- Stomal retraction.
- Stomal prolapse.
- Fungal infections of peristomal skin.

INVESTIGATIONS
- Barium studies when planning stoma reversal, particularly to assess the condition of the distal bowel.
- Serum electrolytes.

TREATMENT
- Patient is counselled regarding stoma care, especially the importance of properly fitting stoma appliances and frequent emptying.
- Patient is taught regarding fiber rich diet and how to remove stoma obstructions.
- Counseling regarding symptoms of electrolyte balance such as dry mouth, reduced urine output, dark concentrated urine, feelings of dizziness upon standing, marked fatigue and abdominal cramping, so that adequate fluid intake is ensured.
- For skin complications, AgNO₃ cream is prescribed. Topical steroids for allergic complications. Antifungal powder for fungal infections.
- Discussion with the consultant if complications needing surgical revision have developed.
- If the underlying pathology that needed stoma formation has resolved, discussion with the consultant for admission and stoma reversal. The time period is usually 6 weeks to 3 months after the initial procedure.
SALIVARY GLAND TUMORS

HISTORY
Common in middle aged adults. The patient may complain of:
- Painless, slow growing mass on the side of the face, neck or floor of the mouth.
- Sudden onset of pain and rapid enlargement of a pre-existing lesion. This should raise suspicion of malignancy.
- Rarely nasal obstruction, congestion, vision changes, or trismus.
- Symptoms of facial nerve involvement in parotid gland tumors.

EXAMINATION
- Position, size, shape, surface, edges of the tumor.
- Composition and consistency of the mass.
- Assessment of local extension and invasion. Carcinoma is usually fixed to underlying structures.
- Examination of the salivary gland from the inside of the mouth.
- Examination of cervical lymph nodes.
- Facial nerve examination for parotid gland tumors.

INVESTIGATIONS
- Clinical examination is very important in diagnosis.
- FNA, under ultrasound guidance if necessary, after discussion with the consultant.
- CT and MRI, after discussion with the consultant.

TREATMENT
- Superficial parotidectomy is offered for benign tumors of parotid glands and excision of other salivary glands. Appointment for elective surgery is given.
- For suspected carcinomas, patient is admitted for multidisciplinary approach involving the ENT, NORI in addition to us.
LOWER EXTREMITY PERIPHERAL ARTERIAL DISEASE

**HISTORY**
The patients are usually middle aged adults. The patient complaints and your inquiries may include:
- Intermittent claudication i.e. muscle pain on exercise, relieved by rest. Usually occurs in the calf.
- Limitation of walking. Ask the approximate distance at which pain starts, called the claudication distance.
- Ask how long the pain has been present and if there has been gradual deterioration or improvement (collaterals).
- Rest pain, usually in distal extremities such as toes and forefoot. This suggests severe ischemia.
- Ask if rest pain prevents sleeping and if it is relieved by hanging the leg out of the bed.
- Ask about past medical history involving other areas of the vascular system such as MI, stroke, TIA.
- Ask about family history.
- Ask about risk factors such as smoking, diabetes, hypertension and hyperlipidaemia.

**EXAMINATION**

- **INSPECTION:**
  - Colour of the limb. It varies from white in critical ischemia to varying degrees of pallor.
  - Buerger’s angle i.e. the angle to which the limb is raised before it turns white. Normal limb does not turn white even if elevated to 90 degrees. An ischemic limb will turn white on an angle between 15 to 30 degrees for 30 to 60 seconds.
  - Presence of empty veins is noted i.e. guttering of veins.
  - Inspection of the pressure areas for trophic changes, ulceration and gangrene.

- **PALPATION:**
  - Skin temperature.
  - Capillary refilling time.
  - Palpation of all the pulses.

- **AUSCULTATION:**
  - Along the course of the major vessels for bruits.
  - Blood pressure measurement in both arms.

**INVESTIGATIONS**
- Blood sugar, fasting lipid profile, blood pressure.
- CXR, ECG.
- Ankle brachial pressure index (ABPI).
- Doppler studies.
- Duplex Doppler.
- Arteriography, after discussion with the consultant.
TREATMENT

- Patients with critical limb ischemia are referred to the ER.
- Patients with intermittent claudication are advised to lose weight and exercise, good glycemic control and antiplatelet agents and statins.
- Regular follow up.
- Surgery is offered with disabling claudication.
- Good analgesia and cardiac consultation if recent cardiac issue.
INGROWING TOE NAIL

HISTORY
- Common in young males due to excessive use of feet e.g. in sports.
- The principal symptom is pain, particularly on walking. When the nail gets infected, it leads to throbbing pain and purulent discharge from beneath the lateral nail fold.
- The toe may become swollen.

EXAMINATION
- Identification of site. Big toe is commonly affected, particularly its lateral side.
- The colour of the skin of the lateral nail fold is reddish blue.
- Swollen skin and nail are tender to touch.
- There is increase in bulk of the lateral nail fold.
- Rarely, inguinal lymph nodes may be enlarged, indicating long term infection.

INVESTIGATIONS
- Blood CP and Hepatitis B, C profile so that the patient can have the toe nail removed on the next elective list.

TREATMENT
- Simple nail avulsion or wedge excision is done under local anaesthesia followed by antistaphylococcal antibiotics.
- Advice regarding clipping of nails i.e. transversely and avoiding tight, pointed shoes.
SEBACEOUS CYSTS

HISTORY
Most common on the scalp, face, neck and back. The patient complains of a lump in the scalp that is scratched while combing. Such scratches become infected, leading to acute enlargement of the cyst and pain.

EXAMINATION
- These cysts are tense and bulging.
- It lies in the subcutaneous fat with clear skin over it. The skin is attached to it. A punctum may be visible at this point of attachment.
- The cysts may be multiple.

INVESTIGATIONS
- Blood CP and Hepatitis B, C profile so that the patient can have the cyst removed on the next elective list.

TREATMENT
- Excision is done under local anaesthesia.
LIPOMA

HISTORY
- Most patients present because they have noticed a lump and want to know what it is.
- For many patients, the lump is unsightly and also interferes with movement.

EXAMINATION
- Common in subcutaneous tissues of the upper limbs, chest, neck and shoulders.
- Usually not tender. The overlying skin is normal.
- Occur in all sizes.
- They are soft and lobulated. The lobules become prominent with gentle pressure.
- Large lipomata give the impression of fluctuation.
- Lipomata may be fixed to deep structures such as muscles or be freely mobile in subcutaneous tissue.
- It is slow growing.

INVESTIGATIONS
- For small lipomata, Blood CP and Hepatitis B, C profile so that the patient can have it removed on the next elective list.

TREATMENT
- Excision is curative.
- Tissue is sent for histopathology after excision.
- For larger lesions, discussion with the consultant and excision under GA if necessary.
CLINICAL PRACTICE GUIDELINES
FOR COMMON CASES IN THE
EMERGENCY ROOM (ER)
RIGHT ILIAC FOSSA (RIF) PAIN

- Resuscitation as per ATLS recommendations after referral by the CMO.
- Integrity of the airway.
- Ensure that there is no respiratory distress.
- Measurement of blood pressure and pulse.
- IV access.
- Catheterization if BP low or septic.
- If all parameters within normal range, then

HISTORY

Patient is asked about:
- Malaise
- Anorexia
- Fever
- Nausea and vomiting
- Abdominal pain starting centrally and localizing to RIF.
- Diarrhea (common and may be mistaken for acute gastroenteritis.
- Abdominal pain caused by moving and coughing.

PHYSICAL EXAMINATION

- Fever
- Tachycardia
- Maximal tenderness and rebound tenderness over McBurney’s Point (only if appendix is in its usual place) and cough sign.
- Palpation of LIF causes worsening of pain in RIF (Rovsing’s Sign).
- The Psoas Sign is indicative of a retrocecal appendix. This is manifested by right lower quadrant pain with passive right hip extension.
- The Obturator Sign is indicative of a pelvic appendix. When the clinician flexes the patient’s right hip and knee followed
INVESTIGATIONS

- Request BLIs especially Blood CP and Urine R/E.
- The diagnosis of acute appendicitis is a clinical one. However ultrasound abdomen and pelvis should be ordered in all women of childbearing age.

TREATMENT

- NPO (non per os) till further orders.
- IV antibiotics e.g. ceftriaxone 1g BD and metronidazole 500mg TDS.
- IV analgesics.
- Adequate fluid hydration.
- Take consent.
- If the symptoms fail to settle, appendicectomy after an NPO interval of at least 6-8 hours.
ACUTE EPIGASTRIC PAIN (SUSPECTED ACUTE PANCREATITIS)

WARNING: Acute Pancreatitis patients frequently need resuscitation.
- Vitals record and resuscitation as per ATLS recommendations after referral by the CMO.
- Proceed only when the patient is haemodynamically stable.

HISTORY
Patient is asked about:
- Radiation of pain (characteristic radiation to the back)
- Relief of pain (relief with bending forwards)
- Severe nausea, vomiting and anorexia
- Agitation, restlessness
- Fever
- Previous history of gall stones or RHC pain
- Alcohol use
- Drug history

EXAMINATION
Look for:
- Dehydration
- Hypotension
- Tachycardia
- Epigastric tenderness associated with guarding and in severe cases, with rigidity.
- Left flank ecchymoses (Grey-Turner sign) and periumbilical ecchymoses (Cullen’s sign), signs of haemorrhagic pancreatitis.

INVESTIGATIONS
- BLIs especially Blood CP, LFTs, U and E. Include in them LDH, BSR and Serum Amylase.
- Serum Lipase and AST to an outside lab (complete RANSON’s criteria AT ADMISSION).
- ECG to rule out MI as a differential.
- Ultrasound abdomen to rule out gallstones in bile duct as a cause. DO NOT send the patient to the radiology department unless haemodynamically stable.
- CT scan is not usually done unless diagnosis confirmed and at least 48 hours elapsed since start of pain.
- Erect chest X-ray or lateral decubitus abdominal X-ray to rule out perforated peptic ulcer.
TREATMENT

- Patient is advised NPO till further orders.
- In severe cases, contact the Surgical ICU for availability of bed for optimized fluid balance, respiratory, cardiovascular and renal support.
- Monitoring of pulse rate, blood pressure, urine output and oxygen saturation every 2 hours.
- IV antibiotics eg imipenem 1g TDS.
- IV fluids, ensuring urine output at 0.5cc/kg/hr.
- Adequate IV analgesia, particularly with opiate derivatives (tramal+gravitate).
- If gall stone pancreatitis is the diagnosis, early ERCP (not available at PIMS) after patient is haemodynamically stable.
- Patient is admitted.
- Planning for further investigations (RANSON’s criteria 48 hours after admission, CT), surgical interventions and nutrition in the ward.
SUDDEN ONSET RIGHT HYPOCHONDRIAL (RHC) PAIN (BILIARY COLIC AND ACUTE CHOLECYSTITIS)

- Vitals record and resuscitation as per ATLS recommendations after referral by the CMO.
- Proceed only when the patient is haemodynamically stable.

HISTORY

Patient is asked about:
- Characteristics of pain: In acute cholecystitis, usually severe continuous right upper quadrant pain radiating to the right flank, back and shoulder. In biliary colic, intermittent severe epigastric and right upper quadrant pain.
- Anorexia
- Nausea and vomiting
- Fever
- Association of pain with the ingestion of fatty foods.

EXAMINATION

Assessment for:
- Fever
- Tachycardia
- RHC tenderness
- RHC guarding in severe cases.
- Tenderness over gall bladder during inspiration (Murphy’s Sign).

INVESTIGATIONS

- BLIs especially Blood CP, LFTs, electrolytes, blood culture and Serum Amylase.
- Ultrasound abdomen for identification of stones, determining wall thickness and assessing ductal dilation.

TREATMENT

- NPO
- Place nasogastric tube if vomiting.
- IV antibiotics e.g. ceftriaxone 1gm BD and metronidazole 500mg TDS.
- IV analgesia e.g. tramal+gravinate or ketorolac (Toradol).
- IV antispasmodics e.g. Nospa (drotaverine)
- IV fluids as guided by Serum Electrolytes.
- Admission and decision regarding further management, particularly surgical, in the ward.
ACUTE ABDOMEN

- Vitals record and resuscitation as per ATLS recommendations after referral by the CMO.
- Proceed only when the patient is haemodynamically stable.

HISTORY
- Patient’s age and sex is noted. If older than 50, specific conditions in addition to usual differentials are suspected e.g. atypical MI, mesenteric ischemia and colon cancer.
- If female of child bearing age, determination pregnancy status.
- Patient is asked about exact location of pain. This will give an idea of the possible underlying structures involved.
- Question about onset (sudden or gradual). Sudden onset suggests a serious underlying cause (organ perforation or ureretic or biliary tract obstruction).
- Constant pain of gradual onset but progressively worsening points to inflammation or intestinal obstruction.
- Intermittent pain, poorly localized suggests a colic arising from a visceral structure.
- Radiation of pain. If radiating to the back, consider retroperitoneal structures e.g. aorta, pancreas and kidneys.
- Patient is asked about the last bowel movement and its nature.
- Patient is asked about associated symptoms e.g. anorexia, nausea, vomiting, fever (PATTERN OF STEP LADDER FEVER FOR TYPHOID), abdominal distention. Look out for vomiting after the onset of pain (very common), suggesting intestinal obstruction.
- History major comorbidities (MI, pancreatitis, gallstones, cancer, hernias, TUBERCULOSIS) and surgical history (risk of obstruction and perforation).
- Drug history e.g. use of NSAIDS.

EXAMINATION
- Assessment for apprehension, anxiety, sweating, fever, tachycardia and jaundice.
- Inspection for restlessness, rigidity, distention and scars of previous surgery. Examination of the skin for herpes zoster.
- On auscultation, listening of bowel sounds for two minutes. Absence indicates peritonitis. High pitched sounds or absence with distention indicates obstruction.
- Palpation to assess for tenderness, its location, and signs of peritoneal irritation, such as involuntary guarding and rigidity.
- Examination for Carnett’s sign, Murphy’s sign, obturator sign, psoas sign, Rovsing’s sign and Murphy’s renal punch.
- Examination for the presence of any irreducible or possibly strangulated hernia.
- Testicular examination in males. In case of lower abdominal pain in females, request for Gynae consult for pelvic exam.
- Digital rectal examination for any mass, impacted feces or frank blood. Tenderness anteriorly will indicate peritonitis.
INVESTIGATIONS

- BLIs especially Blood CP, LFTs, RFTs, Serum Electrolytes, Serum Amylase, LDH, BSR, Urine R/E (in cases of possible urinary tract symptoms). Urine for β hCG in case of strong suspicion.
- Blood for cross match.
- Erect chest X-ray and X-ray erect abdomen or lateral decubitus abdominal X-ray (X-rays contra-indicated in pregnancy) if suspected perforation or obstruction.
- Ultrasound abdomen and pelvis for suspected hepatobiliary, tubo-ovarian disease, pancreatitis and abdominal aortic aneurysm.
- Emergency CT in exceptional cases after discussion with the consultant on call.

MANAGEMENT

- Frequent monitoring of vital signs.
- NPO
- I/V fluids e.g. Ringer’s Lactate.
- I/V antibiotics e.g. Ceftriaxone 1g BD and Metronidazole 500mg TDS.
- NG tube is for bowel decompression.
- Urinary catheterization in critical patients.
- Adequate I/V analgesia e.g. tramal+gravinate.
- IV antispasmodics e.g. Nospa (drotaverine).
- For patients with intestinal tuberculosis, ATT must continue whether oral or I/V.
- Further management will vary with the etiology.
- Admission for further management in the ward if necessary.
- Arrangement of blood and shifting of patient to the OT for cases needing urgent surgical intervention, after taking high risk consent.
ACUTE PEPTIC ULCER PERFORATION

WARNING: Patients with GI perforation frequently present with shock.
- Vitals record and resuscitation as per ATLS recommendations after referral by the CMO.
- Proceed only when the patient is haemodynamically stable.

HISTORY
Ask about:
- Sudden onset upper abdominal pain.
- Constant pain that is worse with breathing and moving.
- Pain that radiates to the back or shoulders.
- Previous history of recurring dyspepsia or peptic ulcer disease.
- Haematemesis and melena.
- Nausea, vomiting and anorexia.
- Drug history e.g. NSAID use and smoking history.

EXAMINATION
Look for:
- Appearance of shock e.g. fever, diaphoresis, pallor, tachycardia, hypotension.
- Marked generalized abdominal tenderness, guarding and rigidity (classic ‘Board Like’ is rare).
- Decreased or obliterated normal liver dullness.

INVESTIGATIONS
- BLIs especially Blood CP, Serum Electrolytes, LFTs, RFTs, clotting profile and Blood for Cross Match.
- If patient is haemodynamically stable, erect CXR and lateral decubitus abdominal X-ray.

TREATMENT
Treatment is surgical unless patient declines. Supportive care while OT is being prepared with:
- NPO
- NG and urinary catheter.
- I/V fluids (perforated peptic ulcer patients typically respond to fluid resuscitation).
- I/V antibiotics e.g. Ceftriaxone 1gm BD and Metronidazole 500mg TDS.
- I/V PPI e.g. Omeprazole 40mg OD or if facility available, 80mg stat, then 8mg hourly.
- I/V analgesia e.g. tramal+gravinate.
- High risk consent.
OBSTRUCTIVE JAUNDICE
(UNCOMPLICATED CHOLEDODCHOLITHIASIS, CHOLANGITIS AND CARCINOMA PANCREATIC HEAD)

- Vitals record and resuscitation as per ATLS recommendations after referral by the CMO.
- Proceed only when the patient is haemodynamically stable.

HISTORY

Ask about:
- Epigastric and RHC pain.
- Jaundice, dark urine and pale stools
- Nausea, anorexia, vomiting, itching.
- FEVER, RIGORS AND CHILLS.
- Weight loss
- Previous history of gallstones and pancreatitis.
- Any history of hepatitis.
- Drug history.

EXAMINATION

Look for:
- Signs of jaundice on skin and sclera (icterus).
- RHC tenderness on palpation.
- If gallbladder is palpable (Courvoisier sign), then suspect underlying pancreatic malignancy.
- If Charcot’s triad (high grade swinging fever, jaundice and RHC pain) is complete, complicated choledocholithiasis or cholangitis is diagnosed.

INVESTIGATIONS

- BLIs especially Blood CP, LFTs, RFTs, PT/APTT, HBsAg and Anti HCV, Serum Electrolytes, BSR, LDH, Serum Amylase.
- Ultrasound abdomen.
MANAGEMENT

- If uncomplicated choledocholithiasis is diagnosed, patient is discharged on symptomatic treatment, to return in the OPD.
- If ultrasound shows pancreatic carcinoma and patient is asymptomatic, discharge, to return to the OPD for detailed management.
- For cholangitis,
  - NPO
  - NG and urinary catheter.
  - Frequent monitoring of vital signs.
  - I/V antibiotics e.g. Ceftriaxone 1g BD and Metronidazole 500mg TDS.
  - I/V fluids as guided by Serum Electrolytes.
  - I/V analgesics e.g. tramal+gravinate.
  - Correct coagulopathies with FFPS, vitamin K.
  - Admission after initial stabilization.
  - Referral for ERCP in unresolved ascending cholangitis.
INITIAL MANAGEMENT OF ALL TRAUMA PATIENTS
(AS PER ATLS RECOMMENDATIONS)

In a disaster situation, patient’s triage i.e. those with live threatening injuries and with the greatest chance of survival are treated first.

AIRWAY MAINTAINENCE WITH CERVICAL SPINE STABILIZATION

- Assume cervical spine injury in all blunt trauma patients. Hence protect the spinal cord with cervical collar or manual in-line immobilization.
- If patient is conscious, ask his name. A clear accurate response verifies the patient’s ability to protect his airway, at least temporarily.
- Inspection of oropharyngeal cavity for disruption; injuries to the teeth or tongue, blood, vomitus, pooling of secretions or foreign body.
- Inspection and palpation of anterior neck for lacerations, hemorrhage, crepitus, swelling or other signs of injury.
- If patient is unable to protect his airway, secure a definitive airway (orotracheal or cricothyroidotomy in our setup).
- In the unconscious patient, the airway must be protected immediately once any obstructions (e.g. foreign body, vomitus, displaced tongue) are removed.
- In patients with direct airway trauma e.g. facial, mandibular, tracheal/laryngeal fractures, superficial facial and neck burns, neck and facial haematoma, secure a definitive airway early.

BREATHING AND VENTILATION

- Administration of high flow oxygen using a non-rebreathing reservoir.
- Inspection of chest wall expansion, symmetry, respiratory rate and wounds.
- Palpation of tracheal deviation and surgical emphysema.
- Percussion and auscultation of chest for breath sounds.
- Identification and treatment of life threatening conditions such as tension pneumothorax, flail chest with pulmonary contusion and massive haemothorax.
CIRCULATION WITH HAEOMORRHAGE CONTROL

- Record of blood pressure and pulse.
- Signs of shock.
- Placement of two large bore I/V cannulae. Blood for cross match is sent.
- Fluid resuscitation with crystalloids e.g. Ringer’s Lactate (warmed solution preferred). O Negative blood can be used in severe cases.
- Control of external bleeding with pressure, elevation or proximal tourniquet.
- If there is no obvious source of haemorrhage and the patient is hypotensive, suspicion of bleeding into the chest, abdomen, retroperitoneum, muscle compartment or pelvic and long bone fractures.
- If the patient does not respond to initial fluid bolus, then surgical control of haemorrhage (laparotomy, thoracotomy).

DISABILITY

- Focused neurologic examination. This includes a description of the patient’s level of consciousness using the Glasgow Coma Scale (GCS) score, and assessments of pupillary size and reactivity, gross motor function, and sensation.
- Assessment of any lateralizing signs and the level of sensation if a spinal cord injury is present.
- After excluding hypoxia and hypovolemia, consideration of any changes in the level of consciousness due to head injury.

EXPOSURE AND ENVIRONMENT CONTROL

- Patient is undressed for thorough examination.
- Prevention hypothermia using warm clothing and warm I/V fluids (hypothermia is a cause of coagulopathy and multi-organ dysfunction).
APPROACH TO THORACIC TRAUMA
PRIMARY SURVEY

- Call for help from the paramedical and nursing staff.
- Ask for mechanism of injury from the patient, attendants, paramedics or CMO whilst you simultaneously proceed as per ATLS protocols.
- Stabilization of Cervical Spine.
- Ensure that the airway is clear. Intubation if critical.
- Simultaneously paramedical staff is asked to obtain vital signs i.e. blood pressure, pulse rate, respiratory rate and if possible cardiac monitoring (or ECG) and pulse oximetry.
- Two large bore I/V cannulae, while you simultaneously move on to the second stage of primary survey; BREATHING AND VENTILATION.

- Record of vital signs. Any abnormality, especially hypotension, hypoxia, or persistent tachycardia, should raise suspicion for underlying injury.
- If patient is conscious, ask him for any area of chest pain, shortness of breath, foreign body sensation in mouth or change in voice.
- Inspection of the patient. Look for agitation, depressed mental status, respiratory distress, elevation of the JVP, engorgement of the neck veins, location and nature of major chest wound (GUIDED BY SIMULTANEOUS HISTORY).
- Assessment for decreased chest movement.
- Palpation for tracheal deviation.
- Palpation for subcutaneous emphysema (crepitus).
- Palpation for rib fractures and flail segment.
- Percussion for nature of percussion note (hyper-resonant or dull).
- Auscultation of both sides for possible diminished breath sounds or crepitus. Also auscultation of the heart for faintness of heart sounds.
• Major life threatening injuries are identified and treated. Time should not be wasted on unnecessary investigations.
  ➢ High flow oxygen.
  ➢ In case of Tension Pneumothorax, insertion 12G cannula into the second intercostal space in the midclavicular line, followed by chest drain connected to underwater seal drain.
  ➢ In case of Open Pneumothorax, 3 sided dressing followed by chest drain.
  ➢ In case of Flail Chest, adequate analgesia and endotracheal intubation in severe cases.
  ➢ With massive Haemothorax (1500ml blood in pleural cavity), chest drain insertion.
  ➢ In case of suspected Cardiac Tamponade, blind pericardiocentesis with LP needle and call the Cardiothoracic team.

• IV fluid resuscitation with crystalloids.
• All baselines and blood for crossmatch.
• Arrangement of blood.
• High risk consent.
• Transfer of patient to the OT after initial treatment for definitive intervention if needed.
• Shift the haemodynamically unstable patient, not responding to resuscitation, to the OT, without wasting time on the secondary survey.
APPRAACH TO THORACIC TRAUMA
SECONDARY SURVEY

HISTORY
Detailed history if patient is conscious. Otherwise extrapolate as much as you can from the attendants or eye witnesses. Ask about:

- What exactly happened.
- Dyspnea
- Odynophagia
- Chest pain
- Back pain

EXAMINATION

- Exposure of patient.
- Positioning of patient so that front, back and sides of the chest can be assessed for any wounds missed during the primary survey.
- Accurate documentation of number of stab wounds, entry and exit wounds in case of fire arm injuries for MLC (medico-legal cases).
- Examination of the patient with the following injuries in mind:
  - Simple pneumo/haemothorax
  - Rib fractures
  - Pulmonary contusion
  - Tracheobronchial rupture
  - Blunt cardiac injury
  - Aortic disruption
  - Diaphragmatic rupture
INVESTIGATIONS

- Erect CXR.
- Repeat CXR after all chest drain insertions.
- ECG
- Portable ECHO
- Cardiothoracic Surgical consult.
- Consultant is called for decision regarding CT Thorax.

MANAGEMENT

- High flow oxygen.
- Insert
- Chest drain insertion for isolated pneumo/haemothorax.
- I/V analgesia e.g. tramal+gravinate.
- I/V fluids.
- Arrangement of blood.
- Cardiothoracic surgical referral for all cardiac trauma.
- Transfer of patient to OT if immediate surgical intervention warranted after consent.
- Bed in SICU
ABDOMINAL TRAUMA
PRIMARY SURVEY

Abdominal trauma can manifest a wide range of presentations, from a patient with normal vital signs and minor complaints to an obtunded patient in severe shock.

- Initial resuscitation of the patient as per ATLS protocols.
- BLIs and blood for cross match.
- Any patient persistently hypotensive despite resuscitation, for whom no obvious cause of blood loss can be identified by primary survey, can be assumed to have intra-abdominal injury.
- If the patient is stable, proceed to secondary survey. A FAST Scan and an abdominal CT scan is now indicated.
- If the patient is critically unstable, patient is directly shifted to the OT and emergency laparotomy is performed.

SECONDARY SURVEY

HISTORY

- History from the patient, the other passengers, attendants, police or paramedic staff, the mechanism of injury.
- CLASSIFICATION of the injury into BLUNT OR PENETRATING i.e. blunt trauma common in road traffic accidents whilst penetrating trauma common in gunshot and stab wounds.
- The type of gun used, its caliber and distance from weapon is important in gunshot injuries. Type of instrument, its length and the patient’s position during stabbing is important for stab wounds.
- If the patient is alert, ask history site of maximal pain. Severity of pain will indicate the extent of damage. If the patient is not conscious, you will have to rely on physical examination and investigations.

PHYSICAL EXAMINATION

- Inspection of the anterior abdomen from below the nipple line to the perineum. Log roll to inspect the posterior part of the abdomen.
- Looking for abrasions, contusions, lacerations, penetrating wounds, distention and evisceration of viscera. For MLC cases, accurately document the number and size of the wounds.
- Auscultation for the presence/absence of bowel sounds.
- Palpation of abdomen for tenderness, rebound tenderness, guarding, rigidity and a gravid uterus.
- Percussion to detect fluid accumulation and to elicit subtle rebound tenderness.
- Assessment for pelvic stability.
- Penile, perineal, rectal, vaginal and gluteal region examination.
- Local wound examination in gunshot and stab wounds. using local anesthesia and blunt dissection. Determining the need for immediate laparotomy represents the central task in managing the patient with an abdominal penetrating wound.
INVESTIGATIONS

- Routine BLIs and Urine R/E.
- CXR (supine/erect).
- FAST Scan.
- Proceed to CT Scan after consulting the consultant on call if conservative management is being contemplated.
- ANY UNSTABLE PATIENT IS NOT SENT TO THE RADIOLOGY DEPARTMENT.
- Diagnostic Peritoneal Lavage is usually unnecessary here at PIMS as FAST and CT Scan have replaced this modality but every surgeon should know its indications, procedure and interpretation and complications. The presence of blood, gastrointestinal contents, bile or feces through the lavage catheter indicates the need for laparotomy.

MANAGEMENT

All patients with abdominal trauma are evaluated for the need for operative care. Laparotomy is performed in the following cases:

- Unexplained signs of blood loss or hypotension in a patient who cannot be stabilized despite adequate resuscitation and in whom intra-abdominal injury is strongly suspected.
- Blunt trauma with free blood on ultrasound and an unstable circulatory status.
- Blunt trauma with radiologic evidence of solid organ injury not suitable for conservative management.
- Clear and persistent signs of peritoneal irritation.
- Radiologic evidence of pneumoperitoneum consistent with a viscus rupture.
- Evidence of a diaphragmatic rupture.
- Evisceration
- All penetrating injuries with visible viscera, clinical features of peritonitis, haemodynamic instability and developing signs of sepsis need exploration.
- AS HERE AT PIMS AND AROUND THE WORLD, EXPLORATORY LAPAROTOMY IS RECOMMENDED IN CASE OF PERITONEAL BREACH OR ORGAN INJURY.
STANDARD OPERATING PROCEDURES FOR COMMON CASES IN THE EMERGENCY ROOM

VASCULAR INJURIES: INITIAL MANAGEMENT

- Initial resuscitation as per ATLS protocols.
- Control of bleeding. Application of direct pressure to the open haemorrhaging wound.
- Replacement of volume lost with aggressive fluid resuscitation.
- Immediate involvement of ORTHO Department. Realignment and splinting of any fracture. Immobilization of any dislocated joint.
- Covering wounds.
- Any expanding haematoma suggests a significant vascular injury.
- SKIN SUTURING IS NOT PERFORMED UNLESS A SIGNIFICANT ARTERIAL OR VENOUS INJURY HAS BEEN RULED OUT.
- Further management when the primary survey is complete and resuscitation is continuing successfully.

FURTHER MANAGEMENT

PHYSICAL EXAMINATION

- ALL CASES BELOW KNEE ARE HANDLE BY ORTHO AND ALL THOSE BELOW THE ELBOW JOINT BY THE PLASTIC SURGERY UNIT. ENSURE THEIR CONSULTATION IS TAKEN IN SUCH SITUATIONS.
- Identification of limb threatening injuries.
- Identification of injuries anatomically close to major arteries and nerves.
- HARD SIGNS OF VASCULAR INJURY:
  - Major haemorrhage
  - Expanding or pulsatile haematoma
  - Absent or diminished distal pulses
  - Pain, Pallor, Paresis i.e. distal ischemia
  - Temperature differential compared to extremities
  - Thrill or audible murmur
- SOFT SIGNS OF VASCULAR INJURY:
  - Significant haemorrhage on history
  - Small non-pulsatile haematoma
  - Neurological deficit
  - Proximity of the injury to a major artery
  - Decreased pulse compared to contra-lateral extremity.
INVESTIGATIONS

- BLIs.
- Blood for cross match and arrange blood.
- Pulse oximetry.
- Given that the patient is haemodynamically stable, plain X-ray films are obtained in case of fractures.
- Doppler ultrasound may or may not be available, however that an ankle-brachial index (ABI) of less than 1 is predictor of arterial injury.
- DUPLEX Scanning is not available round the clock.
- Intra-operative angiography is not available at PIMS.

MANAGEMENT

- High risk consent. Adequate counseling of patient or attendants that haemorrhage control will take priority over limb salvage.
- Shifting patient to the OT if there are hard signs of vascular injury. Immediate surgical intervention is performed.
- If there has been prolonged ischemia (≥4 to 6 hours), significant vascular disruption, crush or significant soft tissue injury, wound contamination and apparent futility of revascularization, amputation is done. ALL CASES BELOW KNEE ARE HANDLED BY THE ORTHO UNIT. THOSE BELOW THE ELBOW BY THE PLASTIC SURGERY UNIT.
- Vascular repair is performed where possible. Saphenous vein graft is usually employed where end to end anastomosis is not possible. Synthetic grafts are not readily available in our setup.
- If there is associated skeletal injury, vascular repair is done first. Then stabilization of skeleton with splints or external fixation, as decided by the Ortho team.
- Fasciotomy is performed to decompress all four compartments of the leg, to prevent the development of the compartment syndrome.
- I/V Heparin is started if there is no contra-indication.
- POST-OP, frequent evaluations of pulse, capillary refill and maintenance of adequate hydration.
- Frequent dressings and wound care.
- Vascular injuries with soft signs may be observed closely and managed conservatively.
SKIN ABSCESSES

HISTORY
- The patient presents with a painful red mass that is compressible, compressible, warm to touch and tender.
- Ask about:
  - The location of the mass. TAKE CARE OF THE PRIVACY OF THE PATIENT.
  - Days since its presence.
  - Presence of high grade fever, rigors, chills, nausea, vomiting.
  - Any history of skin breach at that site, commonly insect bite and injury with a foreign body such as a splinter or a needle.
  - Any cause for a weakened immune system such as diabetes or steroid therapy.

EXAMINATION
Examination for:
- Toxic look
- Fever
- Tachycardia
- Painful, tender, fluctuant and erythematous nodules, frequently surmounted by a pustule and surrounded by a rim of erythematous swelling.
- Pustular drainage
- Regional adenopathy.
- For peri-anal abscesses, thorough inspection and careful digital rectal examination is performed.

INVESTIGATIONS
- Detailed investigations often unnecessary before incision and drainage.
- Blood CP if history of fever.
- For history of diabetes and recurrent abscesses, medicine consult for adequacy of glycaemic control.
- For large abscesses, senior is consulted regarding the need for ultrasound to gauge its extent.
TREATMENT

- Incision and drainage of the abscess under local anaesthesia. If it is small, it can be done in the ER. Larger abscesses and peri-anal abscesses are performed in OT.
- Pus for culture and sensitivity is sent.
- Oral antibiotics are prescribed. For abscesses below the waist (e.g. perianal), gram negative and anaerobe coverage is given.
- Pain killers.
- Daily dressing.
- Counselinf the patient regarding personal hygiene and medical attention for future puncture wounds.
- Discharge for follow up in the OPD with culture results.
DIABETIC FOOT INFECTIONS

PATIENTS WITH DIABETIC FOOT INFECTION MAY PRESENT WITH SEPSIS.
- Vitals record and resuscitation as per ATLS recommendations after referral by the CMO.
- Proceed only when the patient is haemodynamically stable.
- SICU or MICU is contacted if in shock.

HISTORY

Patient is asked about:
- Time since the development of the ulcer.
- Fever
- Pain, warmth, redness, swelling in the affected foot.
- History of local trauma to the affected limb.
- Any rest pain or pain on walking (claudication).
- Numbness in feet.
- History of diabetes and regimen used for glycaemic control.
- Recent BSR values.
- Other co-morbidities.

EXAMINATION

The severity of infection varies from abscess to cellulitis to bone and joint involvement to gangrene or necrotizing fasciitis. Look for:
- Fever, chills, tachycardia, hypotension, confusion.
- Location of lesion.
- Extent of infection (e.g. involving skin, subcutaneous tissue, muscles, tendons and/or bone).
- Whether bone is visible or not.
- Erythema, warmth, tenderness, swelling, pus in the ulcer, formation of sinus tracts with pus discharge.
- Necrosis, crepitus, cutaneous bullae.
- Skin discoloration
- Signs of septic shock.
- Sensory and vascular system examination.
INVESTIGATIONS
Extent of investigations depends on the condition of the patient.
- BLIs especially Blood CP, ESR, LFTs, RFTs, Serum Electrolytes, BSR, PT/APTT, Hepatitis Serology, HbA1c.
- Blood for cross match.
- Blood Cultures.
- ABGs, D-Dimers, Fibrin Degradation Products.
- X-rays for underlying osteomyelitis.
- CXR, ECG.
- Doppler Ultrasound.

TREATMENT
- For patients with cellulitis and abscesses, incision and drainage or debridement is done under local anaesthesia, and discharge on oral antibiotics. Pus for culture and sensitivity is sent. Follow up in Diabetic Foot Care Clinic.
- Patients in sepsis are managed aggressively as follows:
  - NPO
  - I/V antibiotics with staphylococcus, streptococcus, gram negative and aerobic coverage e.g. Carbapenems, Tazocin.
  - Immediate Medicine consult for glycaemic control. Start Sliding scale or Glucose-Potassium-Insulin (GKI) infusion.
  - I/V fluids.
  - Transfer of patient to the OT.
  - Consultant opinion for thorough debridement or amputation.
  - In case, amputation is decided, high risk consent from the patient or attendants.
  - Arrangement of blood.
  - CULTURES OF PUS AND DEBRIDED TISSUE ARE SENT.
  - Bed in SICU is arranged if needed.
ACUTE LIMB ISCHEMIA

**HISTORY**
- Presence, onset and severity of limb pain.
- Previous history of such pain (sudden onset points to embolus rather than thrombus).
- Previous history of claudication.
- History of smoking, diabetes, HTN, MI, AF, malignancy, trauma, prothrombotic states.
- History of recent surgery.

**EXAMINATION**
- Quality and character of the peripheral pulses. Comparison with the other side. Pulselessness is to be expected in the affected limb.
- The skin of both the normal and affected extremity is examined for temperature, color and capillary refill. The skin of the ischemic extremity is typically cool and pale with delayed capillary filling.
- A careful neurologic examination is performed. Subjective sensory deficits such as numbness or paresthesias are signs of early nerve dysfunction secondary to ischemia.

**INVESTIGATIONS**
- BLIs especially Blood CP, LFTs, RFTs, PT/APTT, CPK, LDH.
- ECG, CXR.
- Doppler Ultrasound (only available in the mornings in PIMS).
- Arteriography (available at PIMS).
- CTA, MRA depending on patient affordability.

**TREATMENT**
- I/V analgesia e.g. tramal+gravinate.
- Consultant opinion.
- If there are no contra-indications, I/V unfractionated heparin with 5000U bolus followed by 1000U/hr infusion.
- I/V fluids.
- Admission of patient. Further management to be undertaken in the ward.
- If irreversible damage clinically, confirmed with a Doppler Ultrasound (from outside if necessary). Counseling of patient and attendants over need of amputation. Amputation is performed without delay.
INTESTINAL OBSTRUCTION AND STRANGULATED HERNIA

- Vitals record and resuscitation as per ATLS recommendations after referral by the CMO.
- Proceed only when the patient is haemodynamically stable.

**HISTORY**
- Colicky abdominal pain
- Vomiting
- Inability to pass flatus
- Constipation
- Distention
- Have a high index of suspicion for Intestinal TB. Query for anorexia, night sweats, malaise, anorexia, weightloss.
- History of previous surgery, hernia, tuberculosis, cancer.
- Other co-morbidities.

**EXAMINATION**
- Pyrexia, tachycardia for possible strangulation of hernia.
- Signs of dehydration e.g. dry mucous membranes, hypotension.
- Previous surgical scars and distention on inspection.
- High pitched or hypoactive bowel sounds.
- Tenderness to palpation with guarding and rigidity, pointing to peritonitis.
- Hyper-resonant percussion notes (tympany).
- Abdominal mass e.g. in volvulus.
- Hernia. Hence all hernial orifices must be thoroughly examined.
- Digital rectal examination.
INVESTIGATIONS

- All BLs especially Blood CP, LFTS, Serum Electrolytes.
- Erect AXR. If not possible, Supine AXR and Lateral Decubitus AXR.
- Ultrasound Abdomen.
- CT Abdomen in rare cases but to be ordered only by the consultant on call.

TREATMENT

- NPO
- I/V Fluids.
- NG tube and catheterization.
- I/V analgesia e.g. tramal+gravinate.
- I/V antibiotics e.g. Ceftriaxone 1gm BD and Metronidazole 500mg TDS.
- Glycerine suppositories.
- Serial monitoring of vital signs.
- Serial abdominal examination.
- Admission.
- Consent for surgery.
- If this conservative management fails, patient is shifted to the OT for laparotomy.
- For strangulating obstruction and signs of peritonitis, patient is immediately shifted to the OT for intervention.
CELLULITIS

**HISTORY**

The patient gives a history of:
- An area of pain, tenderness, warmth, swelling and redness.
- Recent trauma to the area, edema, skin infection or inflammation.
- Fever with chills.
- Other co-morbidities e.g. diabetes, cancer and hence radiotherapy.
- Recent surgery.

**EXAMINATION**

- The lower limbs are commonly involved.
- The involved site will be red, warm, swollen and tender.
- The borders will not be sharply defined.
- There will be fever, chills and toxicity.
- Regional lymphadenopathy.

**INVESTIGATIONS**

- Only necessary in severe cases.
- BLIs especially Blood CP, BSR.
- Culture/Sensitivity after aspiration.
- Very rarely, ultrasound.

**TREATMENT**

- Elevation of affected limb.
- Mild cases are discharged without systemic symptoms on oral antibiotics.
- I/V antibiotics for severe cases with gram positive coverage in this empirical therapy.
- I/V analgesia.
- Serious patients are admitted.
- Incision and drainage for severe cases e.g. with circumferential cellulitis, with extensive involvement or with concerns for necrotizing fasciitis.